

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1. (Original) A nucleic acid molecule comprising a sequence of nucleotides that encodes an HPV58 L1 protein as set forth in SEQ ID NO:2, the nucleic acid sequence being codon-optimized for high-level expression in a yeast cell.

Claim 2. (Original) A vector comprising the nucleic acid molecule of claim 1.

Claim 3. (Original) A host cell comprising the vector of claim 2.

Claim 4. (Original) The host cell of claim 3, wherein the host cell is a yeast cell.

Claim 5. (Original) The host cell of claim 4, wherein the yeast cell is selected from the group consisting of: *Saccharomyces cerevisiae*, *Hansenula polymorpha*, *Pichia pastoris*, *Kluyveromyces fragilis*, *Kluyveromyces lactis*, and *Schizosaccharomyces pombe*.

Claim 6. (Original) The host cell of claim 5, wherein the host cell is *Saccharomyces cerevisiae*.

Claim 7. (Original) The nucleic acid molecule of claim 1, wherein the sequence of nucleotides comprises a sequence of nucleotides as set forth in SEQ ID NO:1.

Claim 8. (Original) A vector comprising the nucleic acid molecule of claim 7.

Claim 9. (Original) A host cell comprising the vector of claim 8.

Claim 10. (Original) Virus-like particles (VLPs) comprised of recombinant L1 protein or recombinant L1 + L2 proteins of HPV58, wherein the recombinant L1 protein or the recombinant L1 + L2 proteins are produced in yeast.

Claim 11. (Currently Amended) The VLPs of claim 10, wherein the recombinant L1 protein or recombinant L1 + L2 proteins are encoded by a nucleic acid molecule that is codon-optimized for high-level expression in a yeast cell ~~HPV58 L1-nucleic acid molecule~~.

Claim 12. (Original) The VLPs of claim 11, wherein the codon-optimized nucleic acid molecule comprises a sequence of nucleotides as set forth in SEQ ID NO:1.

Claim 13. (Currently Amended) A method of producing the VLPs of Claim 11, comprising:

(a) transforming yeast with a nucleic acid molecule ~~codon-optimized DNA molecule~~ encoding HPV58 L1 protein or HPV58 L1 + L2 proteins, the nucleic acid molecule being codon-optimized for high-level expression in a yeast cell;

(b) cultivating the transformed yeast under conditions that permit expression of the codon-optimized ~~DNA~~ nucleic acid molecule to produce a recombinant papillomavirus protein; and

(c) isolating the recombinant papillomavirus protein to produce the VLPs of Claim 11.

Claim 14. (Original) A vaccine comprising the VLPs of Claim 11.

Claim 15. (Currently Amended) Pharmaceutical compositions comprising the VLPs of claim 11 and a pharmaceutically acceptable carrier.

Claim 16. (Original) A method of preventing HPV infection comprising administering the vaccine of Claim 14 to a mammal.

Claim 17. (Currently Amended) A method for inducing an immune response in an animal comprising administering the VLPs of Claim 11 to ~~an~~ the animal.

Claim 18. (Original) The virus-like particles of Claim 11 wherein the yeast is selected from the group consisting of *Saccharomyces cerevisiae*, *Hansenula polymorpha*, *Pichia pastoris*, *Kluyveromyces fragilis*, *Kluyveromyces lactis*, and *Schizosaccharomyces pombe*.

Claim 19. (Canceled)

Claim 20. (Original) The vaccine of claim 14, further comprising VLPs of at least one additional HPV type.

Claim 21. (Original) The vaccine of claim 20 wherein the at least one additional HPV type is selected from the group consisting of: HPV6, HPV11, HPV16, HPV18, HPV31, HPV33, HPV35, HPV39, HPV45, HPV51, HPV52, HPV55, HPV56, HPV59, and HPV68.

Claim 22. (Original) The vaccine of claim 21, wherein the at least one HPV type comprises HPV16.

Claim 23. (Currently Amended) The vaccine of claim ~~22~~ 21, wherein the at least one HPV type comprises ~~further comprising~~ HPV18 ~~VLPs~~.

Claim 24. (Currently Amended) The vaccine of claim ~~23~~ 14, further comprising HPV6 VLPs and HPV11 VLPs.

Claim 25. (Currently Amended) The vaccine of claim 24, further comprising HPV31 and HPV 45 VLPs.

Claims 26-28. (Canceled)

Claim 29. (Original) An isolated and purified HPV 58 L1 polypeptide comprising a sequence of amino acids as set forth in SEQ ID NO:2.